

CLAIMS:

1. A substrate for a liquid crystal display comprising at least a transparent substrate and a columnar spacer formed on the transparent substrate, wherein the substrate for a liquid crystal display is characterized in that a following amount of an initial deformation A obtained by measuring the columnar spacer by a following measurement method is 0.04 μm or more, and a following amount of a plastic deformation B is 0.7 μm or less.

- measurement method: a compression load is applied in an axial direction of the columnar spacer up to 80 mN at a load applying speed of 22 mPa/sec and that state is maintained for 5 seconds. Thereafter, a load is removed down to 0 mN at a load removing speed of 22 mPa/sec, and that state is maintained for 5 seconds.

- amount of initial deformation A: an amount of a compression deformation obtained by $X - Y$ assuming that an initial height of the columnar spacer is X , and a height when a load F (mN) obtained by a following formula (1) is applied during an above load application is Y .

$$F = 19.6/n \quad (1)$$

($10 \leq n \leq 50$, n is a density of a number of columnar spacers (pieces/ mm^2))

- amount of plastic deformation B: an amount of a residual deformation obtained by $X - Z$ assuming that the initial height of the columnar spacer is X and a height after removing the load and maintaining that state for 5 seconds

is Z.

2. The substrate for a liquid crystal display according to claim 1, characterized in that a following elastic deformation ratio C is 60% or more.

- elastic deformation ratio C: a deformation ratio obtained by $[(Z - W)/(X - W)] \times 100$ assuming that the initial height of the columnar spacer is X; a height after applying a load of 80 mN and maintaining for 5 seconds is W; and a height after removing the load and maintaining for 5 seconds is Z.

3. The substrate for a liquid crystal display according to claim 1 or 2 characterized by being used in a liquid crystal display of 17 inches or more.

4. A substrate for a liquid crystal display having at least a transparent substrate and a columnar spacer formed on the transparent substrate and being used in a liquid crystal display of 17 inches or more, the substrate for a liquid crystal display being characterized in that a density of a number of the columnar spacers is within a range from 15 pieces/mm² to 50 pieces/mm².

5. A liquid crystal display characterized by having the substrate for a liquid crystal display according to any one of claims 1 to 4.